

## Zoo Amphibians

### Amphibians

- Amphibians are **ectothermic** vertebrates.
- Amphibians are considered major indicator species as their permeable skin makes them vulnerable to environmental hazards.
- Amphibians have gills for at least part of their lives; some species have gills only as larvae, while others can have gills throughout their lives.
- Most amphibians go through **metamorphosis**; adults and larvae do not compete for the same food sources.
- Amphibian's life cycle is tied to water; amphibians require cool, moist environments for their eggs and their skin.

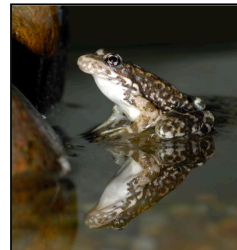


### Order Anura Frogs and Toads



- Adult forms have no tail and hind legs are typically longer than the front, particularly in leaping species
- Most live next to freshwater streams and ponds, but many tropical species are adapted to an entirely arboreal life, including tadpoles swimming in plants that hold water
- Toads typically have dryer, warty skin and are typically more terrestrial, while frogs have smooth moist skin and usually are more associated with water.
- Frogs and toads are insectivores

### Order Anura Mountain Yellow-Legged Frog



*Rana muscosa*

- Found in Southern Sierra Nevada Mountains in rocky streams
- They may smell like garlic when handled
- Unlike most frogs and toads they complete their metamorphosis over multiple seasons.
- Because of the cold water and the high altitudes, this species develops slowly and spends at least one winter underneath the ice; tadpoles may over-winter
- Zoo involved with conservation of species

### Order Anura California Red-Legged Frog



*Rana draytonii*

- Endemic to California; largest native frog in Western U.S.; found in ponds, marshes and streams
- Disappeared from 70% of range
- Tadpoles may overwinter and metamorphose the following summer
- Important food source for the San Francisco Garter Snake
- Zoo involved with conservation of species: reintroducing to Yosemite Valley with western pond turtles
- California state amphibian
- The California red-legged frog was featured in Mark Twain's short story *The Celebrated Jumping Frog of Calaveras County*.

### Order Anura Pacific Chorus Frog



*Pseudacris regilla*

- Found in Western North America from Southern British Columbia south to Baja, California and as far east as Nevada in water habitats
- Also known as Pacific Tree Frog it is the only frog that goes "ribbit"
- Important wetland species as they provide food for so many animals
- The Pacific chorus frog is the most commonly heard frog in its range.
- the Pacific chorus frog changes color based on the air temperature and humidity.
- Since 2007, SF Zoo involved with reestablishing a wild population on zoo grounds and in mountain lake

## Order Anura Yosemite Toad



*Anaxyrus canorus*

- Endemic to California; found in Sierra Nevada Mountains in wet mountain meadows
- They are the most **sexually dichromatic** anuran in North America, with males and females displaying strikingly divergent patterns and coloration at maturity.
- Large, flat, oval paratoid glands produce a toxin to help protect them from predators.
- Long living toad (~15 years); an adaptation to alpine environment, where growing seasons are so short that to complete its life cycle it has to be able to survive for a long time before breeding conditions are optimal.
- Listed as **Endangered** on the IUCN Red list. It has been estimated that the Yosemite Toad has disappeared from over 50% of its historic range
- Zoo involved in raising them and reintroducing them to the Sierras

## Order Anura Red Eyed Tree Frog



*Agalychnis callidryas*

- Found in Central America into northern South America in rainforest near water on the underside of a leaf
- Nocturnal. During the day, they camouflage by covering their blue sides with their back legs, tucking their bright feet under their stomachs, and shut their red eyes
- Adapted to arboreal life with sticky pads on toes to climb trees and cling to vegetation
- Clutch of eggs laid on underside of leaf above a pond or large puddle. When eggs hatch drop into water
- Adults can change their color to a darker green or reddish-brown as their mood changes

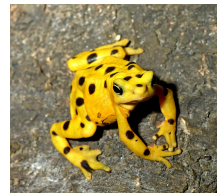
## Order Anura Smokey Jungle Frog



*Leptodactylus pentadactylus*

- Found in southern Central America to northwestern South America in the leaf litter
- Large nocturnal frog that resembles the American bullfrog
- Large tympanic membranes visible behind the eyes
- When threatened, they blow up their body and stiffen their limbs to make it difficult for a predator to eat them
- Males territorial
- Ambush their prey by lying in wait
- Foam nesters; eggs laid in foamy mass of males near water. Tadpoles washed into pools by rainfall

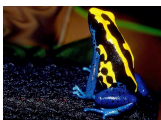
## Order Anura Panamanian Golden Frog



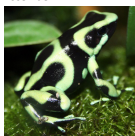
*Atelopus zeteki*

- Endemic to Panama in Central America; found in rain and cloud forest streams
- Despite its common name, the Panamanian golden frog is a true toad
- Brightly colored to warn potential predators that it is very toxic to touch
- Toxins acquired through diet of invertebrates especially insects
- No eardrums. Exhibit form of sign language in order to signal others
- Males stay near the streams where breeding occurs. Females retreat to forest in nonbreeding season
- Critically Endangered - Thought to be extinct in wild since 2007, loss probably due to chytrid fungus

## Order Anura Poison Dart Frogs



*Dendrobates tinctorius*



*Dendrobates auratus*

- 40 species of *Dendrobates*
- Found in Southern Central America and north and central South America in tropical rain forests
- Bright coloration warns predators of their toxic skin secretions
- Toxicity from diet; they eat insects who ate plants having toxins
- They lack webbing and are poor swimmers and are found near water but not in it.
- Breed in the trees during the rainy season